

C130n/MC160n Duplex Unit Maintenance Manual

[Rev. 1]

Related drawings

Drawing No.	Name
44244801TL	C130n/MC160n Duplex Unit Disassembly for Maintenance
44244801TR	C130n/MC160n Duplex Unit RSPL

BOM		Use for		Certification Body	
Rev	Date	DCO No.	Contents	Design	Approval
Approval		Design		Name C130n/MC160n Duplex Unit Maintenance Manual	
Koji Aida		Koji Aida			
Check					
Date				Drawing No.	
2009-02-24				44244801TH	1/24

Document Revision History

[illegible]

Rev. No	Date	Corrected items			Person in charge
		No.	Page	Description of change	

PREFACE

This manual provides an overview of method for maintaining the C130n/MC160n Duplex Unit.

This manual is intended for maintenance staff. For more information about how to operate the C130n/MC160n Duplex Unit, please refer to User 's manual.

- Note!**
- Manual may be revised and updated at any time without notice.
 - Unexpected mistakes may exist in the manual.
OKI will not assume any responsibility whatsoever for damage to the equipment repaired/adjusted/changed by the user etc with this manual.
 - The parts used for this printer may be damaged when handling inappropriately. We strongly recommend maintaining this machine by our registration maintenance staff.
 - Please operate the machine after removing static electricity.

Duplex Unit

THEORY OF OPERATION

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Duplex Unit

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OUTLINE

1. Product specifications

A. Type

Name	Duplex Option
Installation	Mounted on the back side of main body
Reversing system	Exit roller switchback
Document alignment	Center

B. Paper type

Paper size	A4S/LetterS
Paper type	• Plain Paper (60 to 90 g/m ² / 16 to 24 lb)

C. Machine specifications

Power requirements	DC 24 V \pm 10 % (supplied from the main unit)
	DC 5 V \pm 5 % (supplied from the main unit)
Max. power consumption	37 W
Dimensions	357 (W) \times 129.3 (D) \times 315.5 (H) mm 14.1 (W) \times 5.1 (D) \times 12.5 (H) inch
Weight	Approx. 2.5 kg (5.6 lb)

D. Operating environment

Temperature	10 to 35 °C / 50 to 95 °F (with a fluctuation of 10 °C / 18 °F or less per hour)
Humidity	15 % to 85 % (with a fluctuation of 20 %/h)

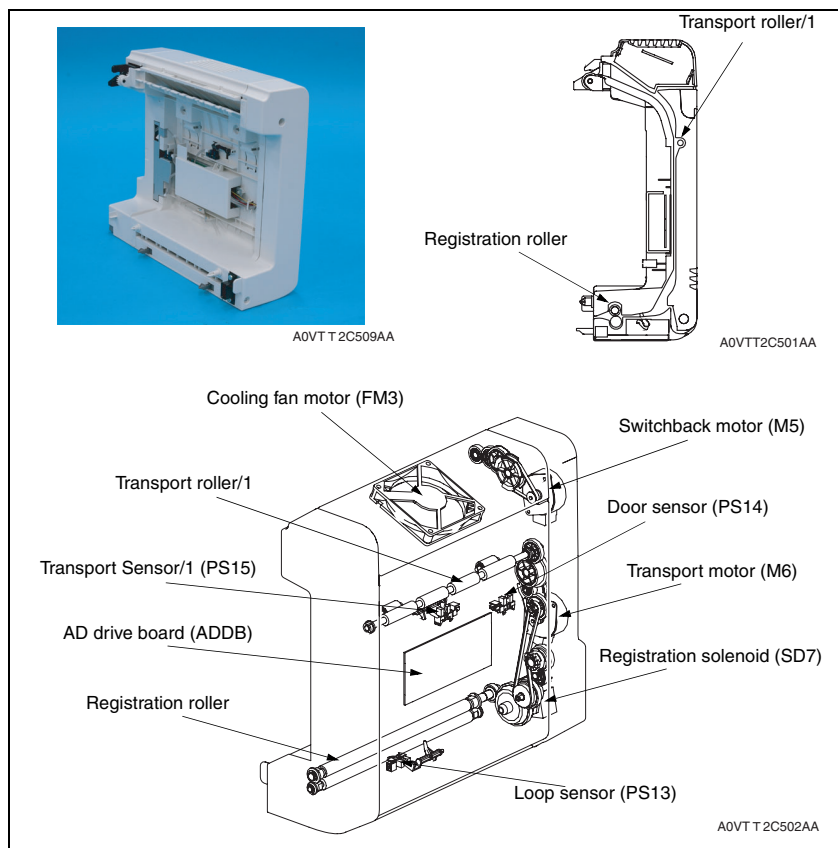
NOTE

- These specifications are subject to change without notice.

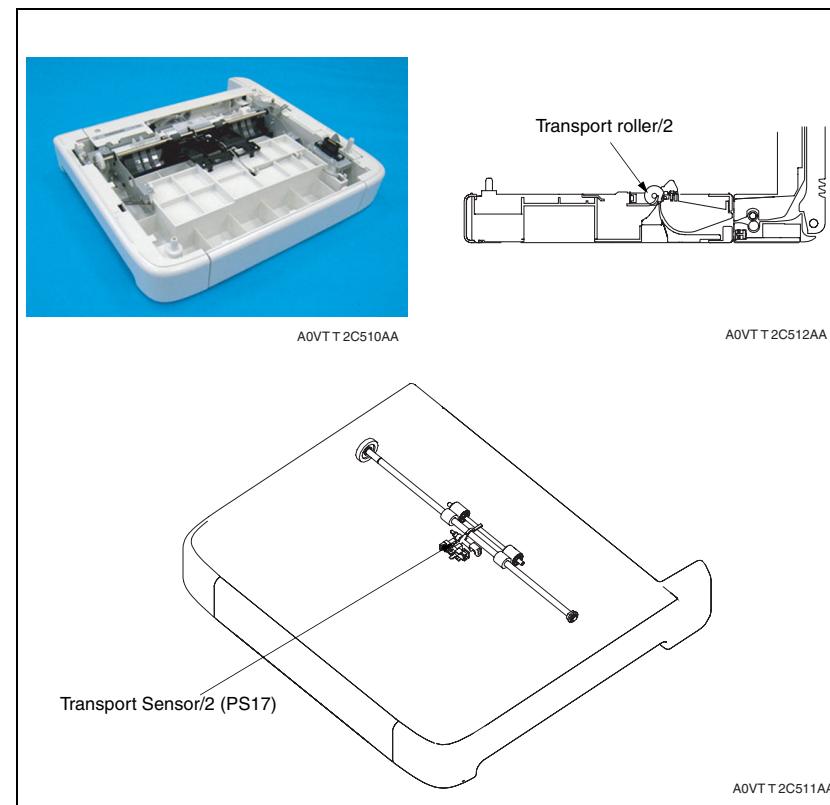
COMPOSITION/OPERATION

2. Composition

2.1 Duplex option

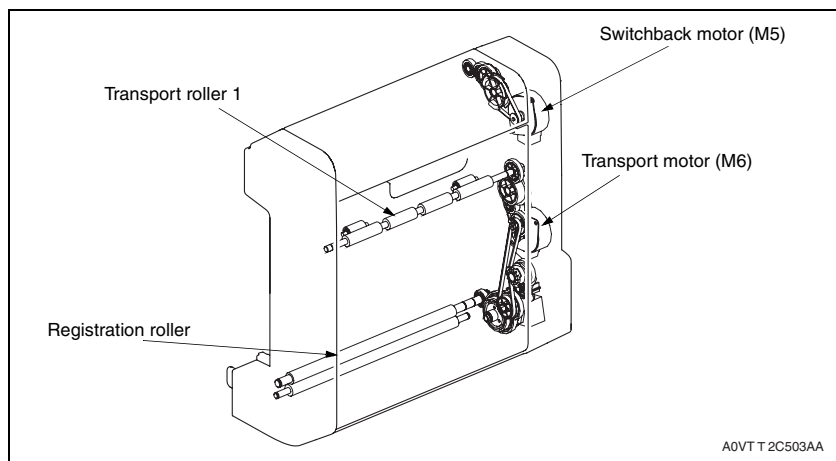


2.2 Attachment

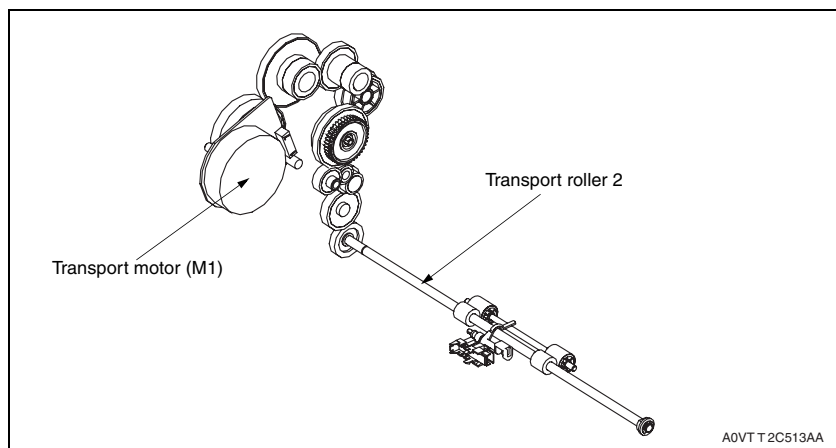


3. Drive

3.1 Duplex option



3.2 Attachment

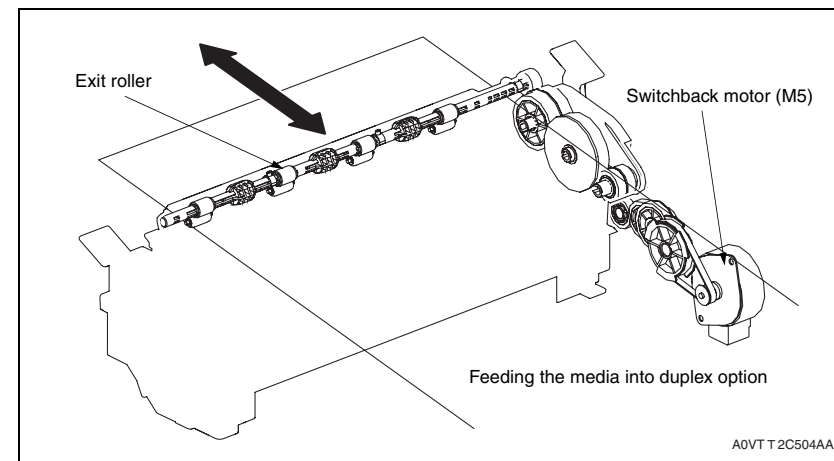


4. Operation

4.1 Switchback mechanism

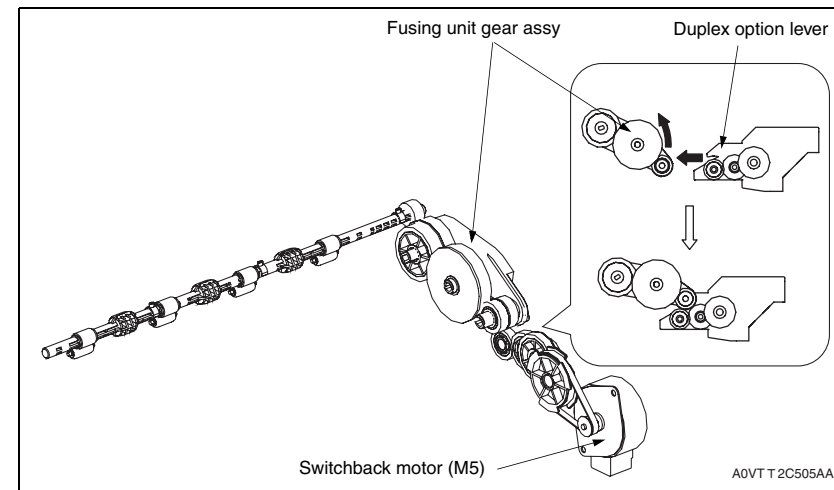
4.1.1 Switchback operation

- The media exit roller of the main unit is used to subject the 1-sided print to a switchback sequence so that the 1-sided print is to be transported through the duplex option.



4.1.2 Exit roller drive coupling mechanism

- When the duplex option is mounted, the fusing unit gear assy is raised by the leading edge of the duplex option lever to disconnect drive from the machine (Fusing roller). Then, the media exit roller is driven by the Switchback motor.



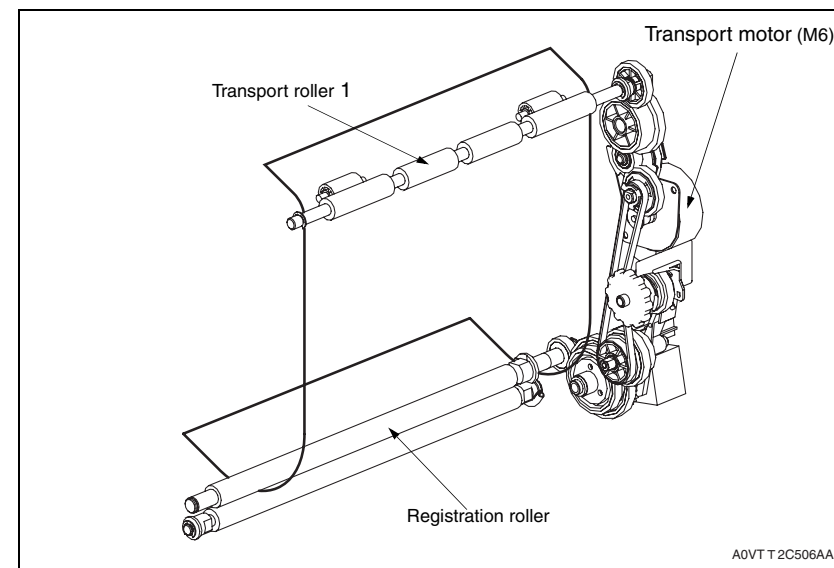
4.1.3 Switchback Motor Control

- Rotation of the Switchback motor (M5) is controlled by the signal output from the AD drive board (ADDB).

4.2 Transport and duplex media take-up mechanism

4.2.1 Transport and duplex media take-up operation

- Drive for the duplex option is provided by the Transport motor (M6).

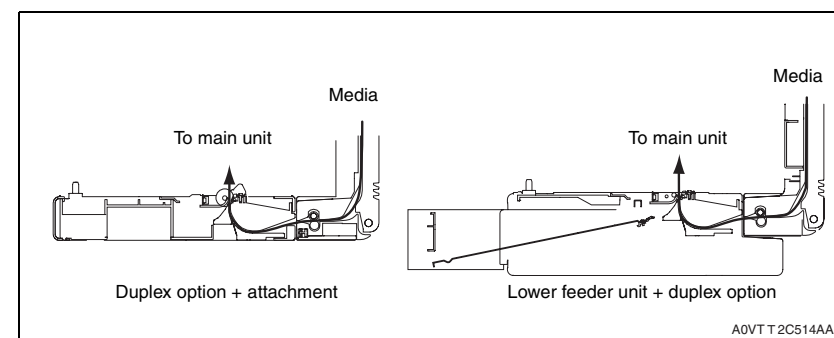


4.2.2 Duplex init transport motor control

- Rotation of the duplex option transport motor is controlled by the signals output from the AD drive board

4.2.3 Media path during take-up of media from the duplex option

- During the sequence of take-up of media from the duplex option, the media is transported via the optional Lower feeder unit or attachment.
- If the duplex option is mounted without mounting the optional Lower feeder unit, the attachment must be installed.

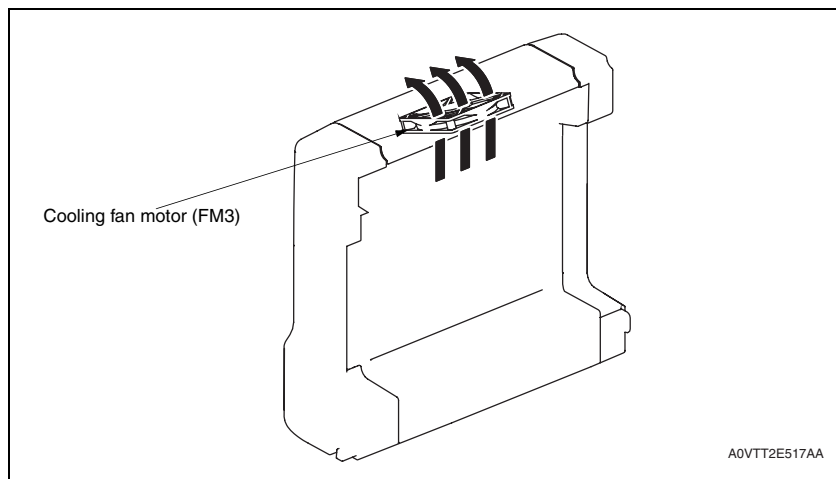


4.2.4 Loop correction control

- A loop correction mechanism is provided to prevent skew from occurring in the second page.
- The Registration solenoid (SD7) is energized after the lapse of a given period of time after the Loop sensor (PS13) has been activated. This drives the registration roller. When the registration roller is driven, the media is conveyed into the machine.

4.3 Fan control

4.3.1 Composition



4.3.2 Operation

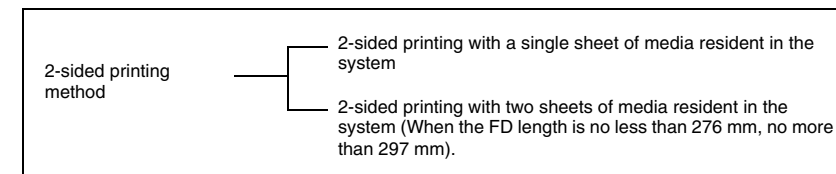
Motor name	Function (purpose)
Cooling fan motor (FM3)	To discharge heat stagnant inside the machine and MFP board to the outside to prevent the temperature of the DC power supply from rising.

4.3.3 Control condition

Motor name	Condition	Control conditions
Cooling fan motor (FM3)	ON (high speed)	• At the start of a duplex operation.
	ON (low speed)	• At the end of a duplex operation (half-speed rotation after a predetermined period of time of full-speed rotation)
	OFF	• Other than above

4.4 2-sided printing method

- The following two types of 2-sided printing methods are available.

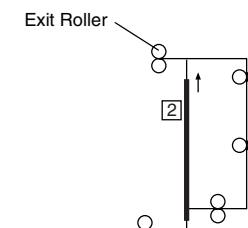


Automatic 2-sided printing is not effective when the FD length is less than 276 mm.

4.4.1 Operation in 2-sided printing with a single sheet of media resident in the system

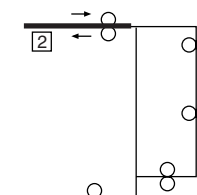
Operation 1

- The first sheet of media is taken up and fed in from the main unit drawer and the main unit starts the first print cycle to produce the print image of the second page of the original.



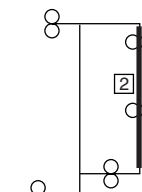
Operation 2

- Immediately before the 1-sided print leaves the media exit roller, the direction of rotation of the media exit roller is reversed and the 1-sided print is transported toward and into the duplex option.



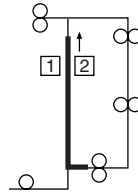
Operation 3

- The media conveyed through the duplex option is temporarily stopped at the duplex take-up position.
- Any skew in the media is corrected at the registration roller before the media is taken up and fed by the duplex option.



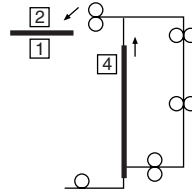
Operation 4

- The main unit carries out the second print cycle to produce the print image of the first page of the original on the other side of the 1-sided print.



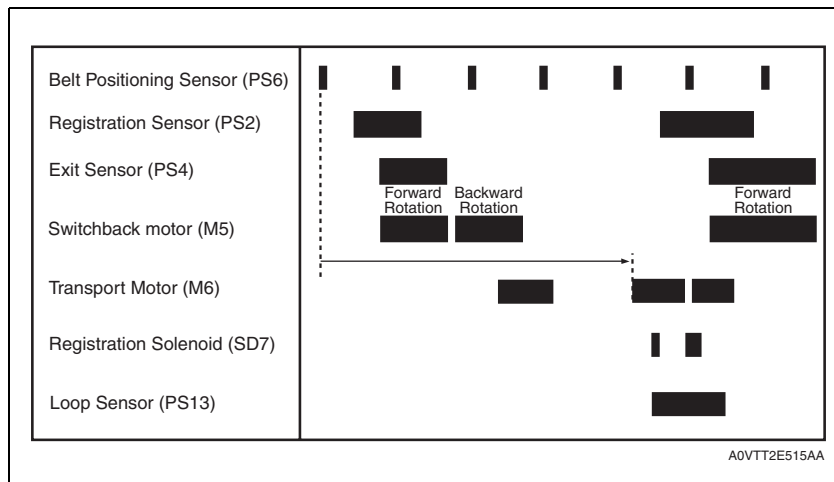
Operation 5

- While feeding the first 2-sided print out of itself, the main unit carries out the first print cycle for the second sheet of media to produce the print image of the fourth page of the original.



- Steps 2 through 5 are repeated.

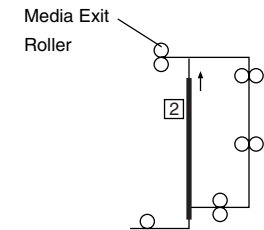
- Two A4 originals with a single sheet of media resident in the system**



4.4.2 Operation in 2-sided printing with two sheets of media resident in the system

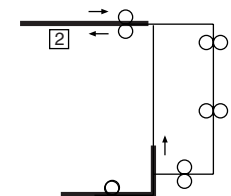
Operation 1

- The first sheet of media is taken up and fed in from the main unit drawer and the main unit starts the first print cycle to produce the print image of the second page of the original.



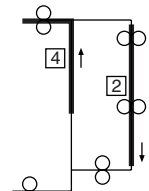
Operation 2

- Immediately before the first 1-sided print leaves the media exit roller, the direction of rotation of the media exit roller is reversed and the first 1-sided print is transported toward and into the duplex option.
- At the same time, the second sheet of media is taken up and fed into the main unit.



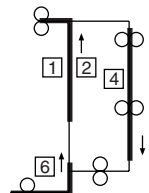
Operation 3

- The main unit carries out the first print cycle for the second sheet of media to produce the print image of the fourth page of the original.
- At the same time, the first 1-sided print is transported through the duplex option.



Operation 4

- The main unit produces the print image of the first page of the original on the first 1-sided print that has been fed through the duplex unit.
- At the same time, the second sheet of media is subjected to a switchback sequence at the exit section and fed into the duplex option.
- At the same time, the third sheet of media is taken up and fed into the main unit.



Duplex Unit

FIELD SERVICE

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Duplex Unit

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OUTLINE

1. Product specifications

A. Type

Name	Duplex Option
Installation	Mounted on the back side of main body
Reversing system	Exit roller switchback
Document alignment	Center

B. Paper type

Paper size	A4S/LetterS
Paper type	• Plain Paper (60 to 90 g/m ² / 16 to 24 lb)

C. Machine specifications

Power requirements	DC 24 V \pm 10 % (supplied from the main unit)
	DC 5 V \pm 5 % (supplied from the main unit)
Max. power consumption	37 W
Dimensions	357 (W) \times 129.3 (D) \times 315.5 (H) mm 14.1 (W) \times 5.1 (D) \times 12.5 (H) inch
Weight	Approx. 2.5 kg (5.6 lb)

D. Operating environment

Temperature	10 to 35 °C / 50 to 95 °F (with a fluctuation of 10 °C / 18 °F or less per hour)
Humidity	15 % to 85 % (with a fluctuation of 20 %/h)

NOTE

- These specifications are subject to change without notice.

MAINTENANCE

2. Periodic check

2.1 Maintenance procedure (Periodic parts check)

- Periodically replaced parts are not employed.

3. Other

3.1 Disassembly/adjustment prohibited items

A. Paint-locked screws

NOTE

- To prevent loose screws, a screw lock in blue or green series color is applied to the screws.
- The screw lock is applied to the screws that may get loose due to the vibrations and loads created by the use of machine or due to the vibrations created during transportation.
- If the screw lock coated screws are loosened or removed, be sure to apply a screw lock after the screws are tightened.

B. Red-painted screws

NOTE

- The screws which are difficult to be adjusted in the field are painted in red in order to prevent them from being removed by mistake.
- Do not remove or loosen any of the red-painted screws in the field. It should also be noted that, when two or more screws are used for a single part, only one representative screw may be marked with the red paint.

C. Variable resistors on board

NOTE

- Do not turn the variable resistors on boards for which no adjusting instructions are given in Adjustment/Setting.

D. Removal of PWBs

CAUTION

- When removing a circuit board or other electrical component, refer to "Handling of PWBs" and follow the corresponding removal procedures.
- The removal procedures given in the following omit the removal of connectors and screws securing the circuit board support or circuit board.
- Where it is absolutely necessary to touch the ICs and other electrical components on the board, be sure to ground your body.

3.2 Disassembly/Assembly list (Other parts)

3.2.1 Disassembly/assembly parts list

No	Section	Part name	Ref. page
1	-	Duplex Option	P.16
2	Exterior parts	Right cover	P.16
3		Left cover	P.16
4	Board and etc.	AD drive board (ADDB)	P.17
5	Others	Cooling fan motor (FM3)	P.17
6		Transport motor (M6)	P.18
7		Switchback motor (M5)	P.18
8		Registration solenoid (SD7)	P.18

3.2.2 Cleaning parts list

No	Section	Part name	Ref. page
1	Transport section	Transport rollers	P.19
2	Media feed section	Media feed rollers *1	P.19

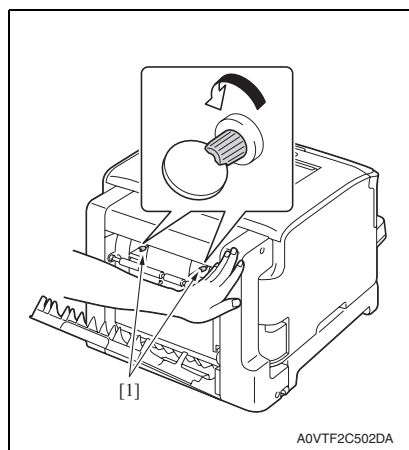
*1: Only when the duplex option attachment is installed.

3.3 Disassembly/Assembly procedure

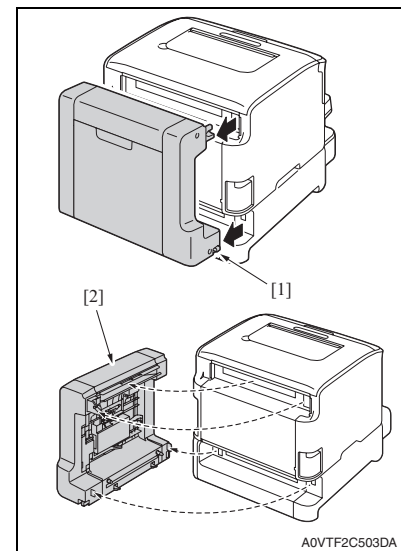
3.3.1 Duplex Option

⚠ NOTE

- Whenever removing or reinstalling the Duplex Option, be sure first to unplug the power cord of the printer from the power outlet.

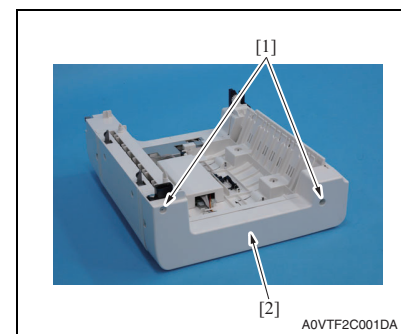


1. Open the Duplex Option door.
2. Turn two locking screws [1] to unlock the Duplex Option.



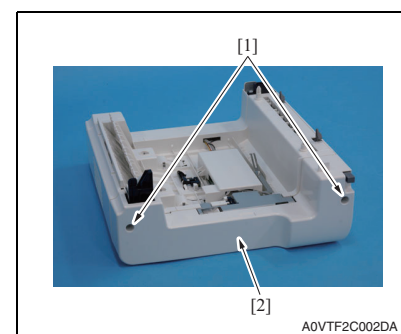
3. Remove the duplex print unit [2] pushing the lever [1].

3.3.2 Right cover



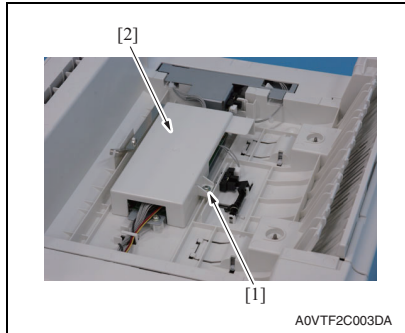
1. Remove two screws [1], and remove the right cover [2].

3.3.3 Left cover

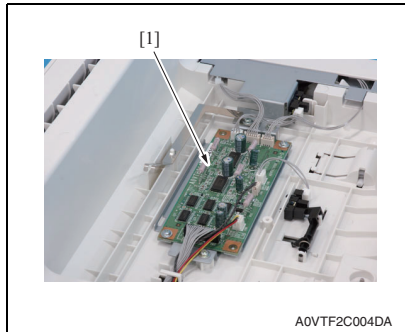


1. Remove two screws [1], and remove the left cover [2].

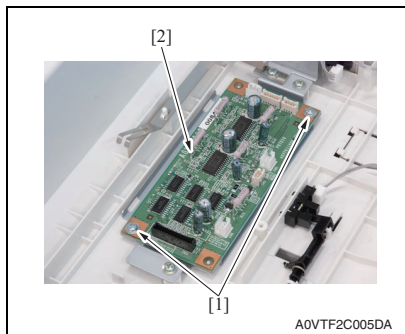
3.3.4 AD drive board (ADDB)



1. Remove the screw [1], and the AD drive board cover [2].



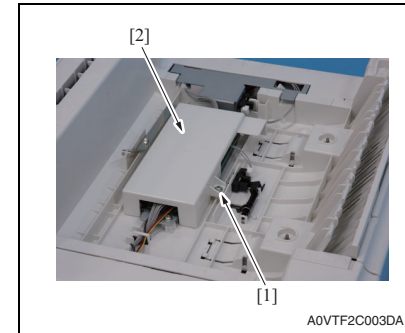
2. Disconnect all connectors from the AD drive board [1].



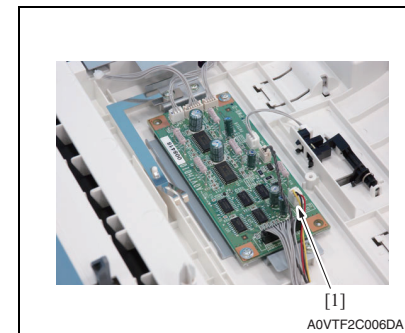
3. Remove two screws [1], and the AD drive board [2].

3.3.5 Cooling fan motor (FM3)

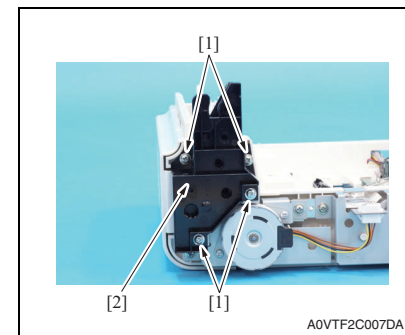
1. Remove the right cover.
[See P.16](#)
2. Remove the left cover.
[See P.16](#)



3. Remove the screw [1], and remove the AD drive board cover [2].



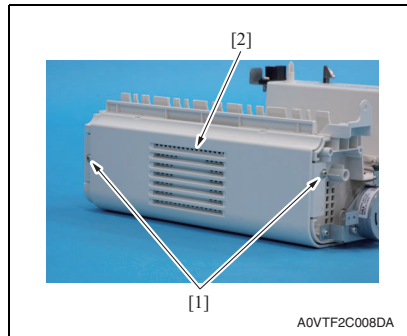
4. Disconnect the connector (CN6) [1].



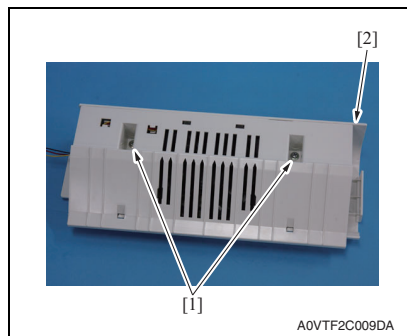
5. Remove four screws [1], remove the gear box [2].

NOTE

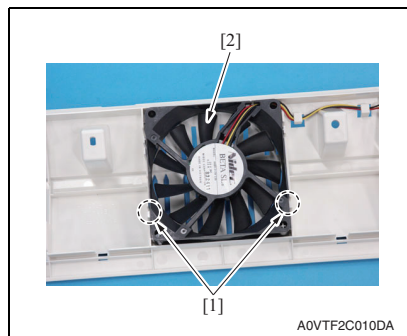
- Pay close attention to gear as it is come off when removing the gear box.



6. Remove two screws [1], and remove the cooling fan motor assy [2].



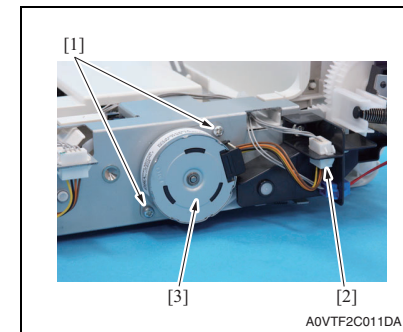
7. Remove two screws [1], and remove cooling fan motor cover [2].



8. Unhook two tabs [1], and remove the cooling fan motor [2].

3.3.6 Transport motor (M6)

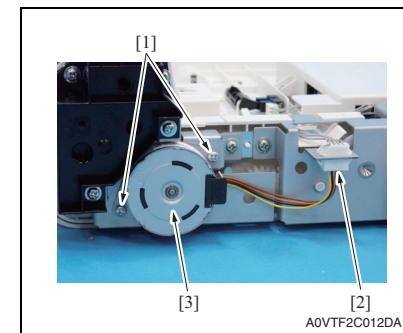
1. Remove the right cover.
See P.16



2. Remove two screws [1] and disconnect the connector [2], and remove the transport motor [3].

3.3.7 Switchback motor (M5)

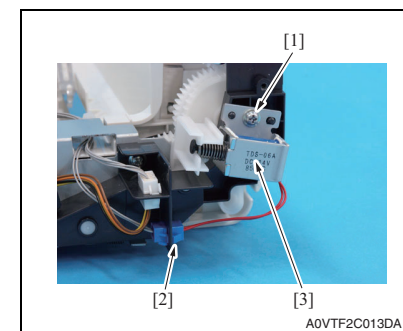
1. Remove the right cover.
See P.16



2. Remove two screws [1] and disconnect the connector [2], and remove the switchback motor [3].

3.3.8 Registration solenoid (SD7)

1. Remove the right cover.
See P.16



2. Remove the screw [1] and disconnect the connector [2], and remove the registration solenoid [3].

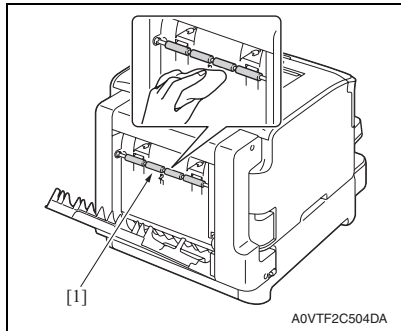
3.4 Cleaning procedure

NOTE

- The alcohol described in the cleaning procedure is isopropyl alcohol.

3.4.1 Transport roller

1. Open the duplex door.

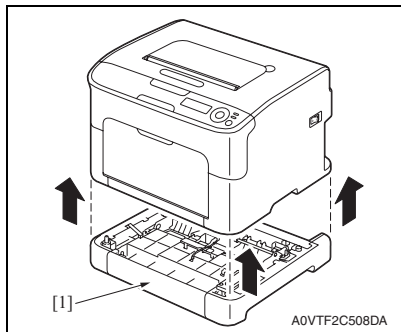


2. Using a cleaning pad dampened with alcohol, wipe the transport rollers [1] clean of dirt.

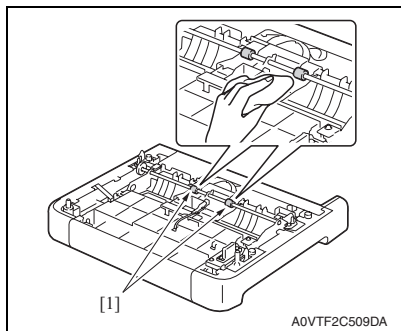
3.4.2 Media feed roller

NOTE

- Only when the duplex option attachment is installed.



1. Lift the printer main body and then remove the Duplex option attachment [1] from the printer.



2. Using a cleaning pad dampened with alcohol, wipe the media feed rollers [1] clean of dirt.

TROUBLESHOOTING

4. Jam display

4.1 List of display messages

- When a paper misfeed occurs a message is displayed on the control panel.

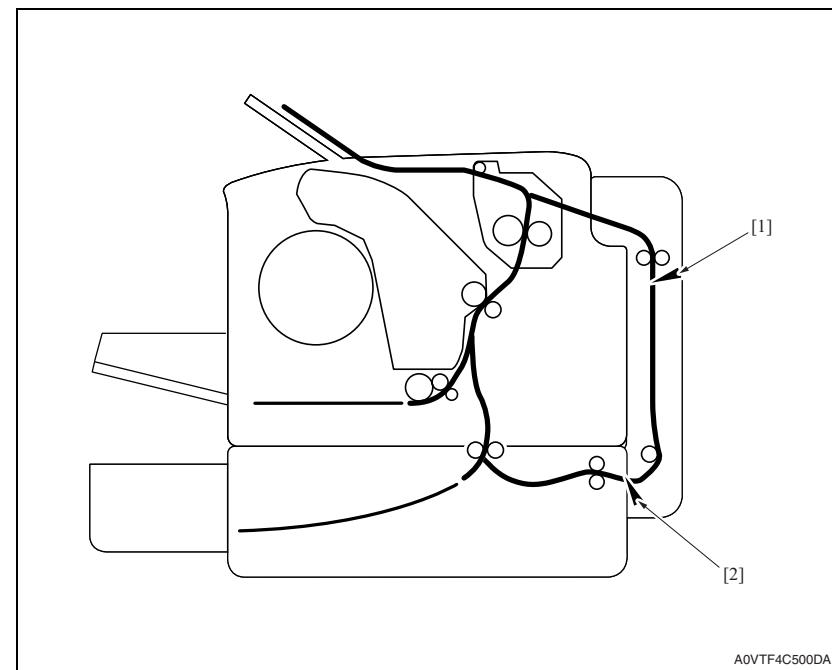
<div style="border: 1px solid black; padding: 10px; text-align: center;"> <p>PAPER JAM DUPLEX</p> </div> <p style="text-align: right; font-size: small;">A034F4E505DA</p>			
Display	Misfeed location	Misfeed clearing location	Ref. page
PAPER JAM DUPLEX	Duplex Option reverse drive/storage section	Duplex Option door	P.21
	Duplex Option media feed section		P.21

4.1.1 Misfeed display resetting procedure

- Open the relevant door, clear the sheet of misfed paper, and close the door.

4.2 Sensor layout

4.2.1 C130n (mounted with the 2nd Tray Unit and Duplex Option)



[1] Transport sensor/1 (PS15)

[2] Loop sensor (PS13)

4.3 Solution

4.3.1 Initial check items

- When a media misfeed occurs, first check the following initial check items.

Check Item	Action
Does the media meet product specifications?	Change the media.
Is media curled, wavy, or damp.	Change the media. Instruct the user in correct media storage.
Is a foreign object present along the media path, or is the media path deformed or worn?	Clean or change the media path.
Are the rolls/rollers dirty, deformed, or worn?	Clean or change the defective roll/roller.
Are the edge guide and trailing edge stop at the correct position to accommodate the media?	Set as necessary.
Are the actuators found operational when checked for correct operation?	Correct or change the defective actuator.

4.3.2 Misfeed at Duplex Option reverse drive/storage section

A. Detection timing

Type	Description
Detection of misfeed at Duplex Option reverse drive/storage section	The transport sensor/1 (PS15) is not unblocked even after the lapse of a predetermined period of time after the switchback motor (M5) has been energized for reverse drive.

B. Action

Relevant electrical parts	
Transport sensor/1 (PS15) Transport motor (M1) Switchback motor (M5)	AD drive board (ADDB) Printer control board (PRCB)

Step	Action	WIRING DIAGRAM	
		Control signal	Location (Electrical component)
1	Initial check items.	—	—
2	Check the PS15 sensor.	ADDB CN4-3 (ON)	G-5
3	Check M6 for correct operation.	ADDB CN7-1 to 4	G-3
4	Check M5 for correct operation.	ADDB CN3-1 to 4	G-3
5	Change ADDB.	—	—
6	Change PRCB.	—	—

4.3.3 Misfeed at Duplex Option media feed section

A. Detection timing

Type	Description
Detection of misfeed at Duplex Option paper feed section	The paper loop sensor (PS13) is not unblocked even after the lapse of a predetermined period of time after a duplex paper feed sequence has been started.
	The loop sensor (PS13) is not blocked even after the lapse of a predetermined period of time after a duplex paper feed sequence has been started.
	The transport sensor/1 (PS15) is not blocked even after the lapse of a predetermined period of time after a duplex paper feed sequence has been started.

B. Action

Relevant electrical parts	
Loop sensor (PS13) Transport sensor/1 (PS15) Transport motor (M6)	AD drive board (ADDB) Printer control board (PRCB)

Step	Action	WIRING DIAGRAM	
		Control signal	Location (Electrical component)
1	Initial check items.	—	—
2	Check the PS13 sensor.	ADDB CN2-3 (ON)	B-4 to 5
3	Check the PS15 sensor.	ADDB CN4-3 (ON)	G-5
4	Check M6 for correct operation.	ADDB CN7-1 to 4	G-3
5	Change ADDB.	—	—
6	Change PRCB.	—	—

5. Error codes

5.1 Trouble code

- When a malfunction occurs, the printer shows the corresponding trouble status by means of the Error indicator on the control panel or LCD display.

5.1.1 Indication of the LCD display (C130n)

- The printer's CPU performs a self-diagnostics function that, on detecting a malfunction, gives the corresponding trouble code and maintenance call mark on the control panel.



5.1.2 Trouble code list

Code	Item	Detection Timing
004A	Duplex unit cooling fan motor malfunction	<ul style="list-style-type: none"> The fan motor lock signal remains HIGH for a predetermined consecutive period of time while the cooling fan motor remains energized.

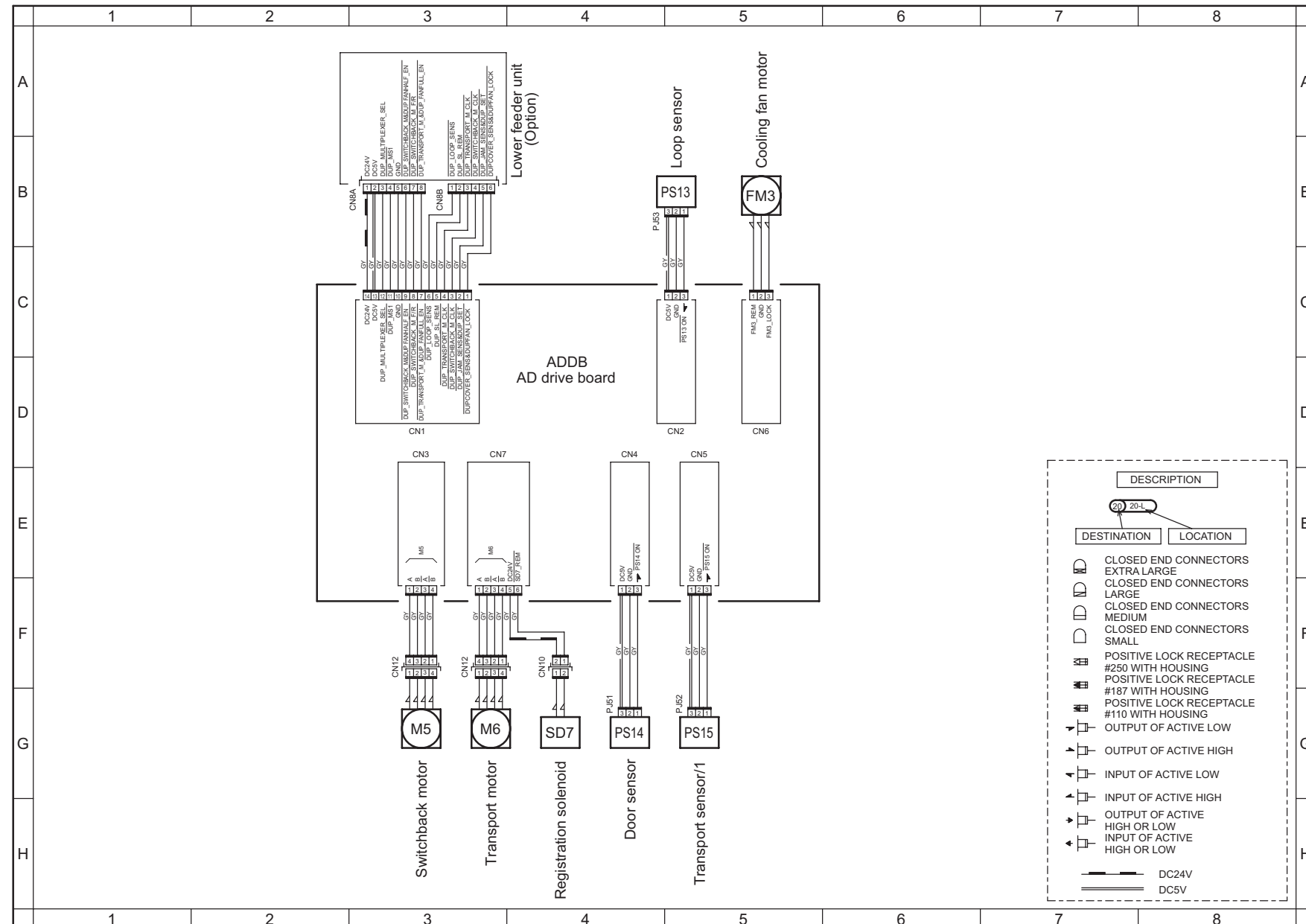
5.2 Solution

5.2.1 004A: Duplex unit cooling fan motor malfunction

Relevant electrical parts	
Cooling fan motor (FM3)	AD drive board (ADDB) Printer control board (PRCB)

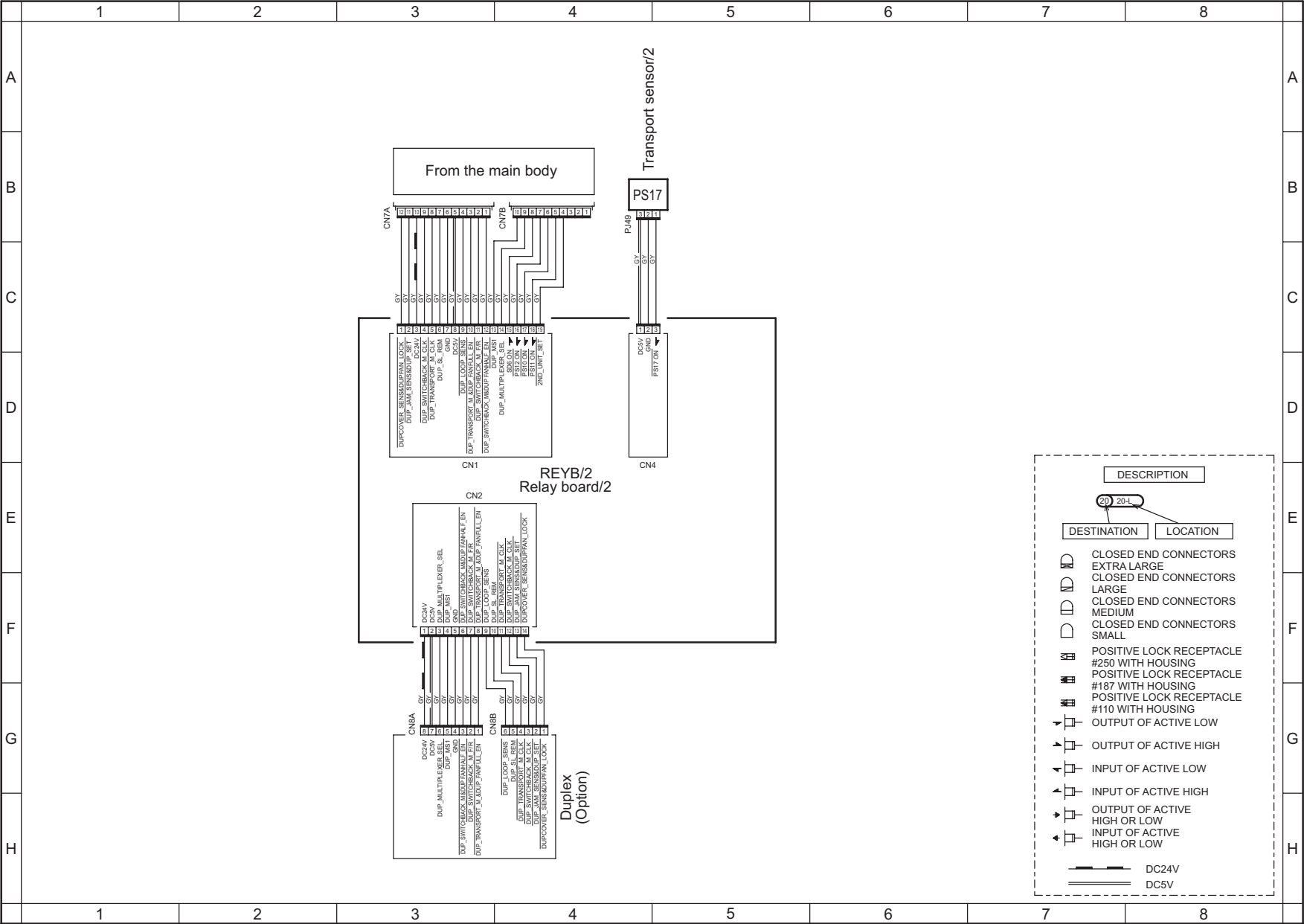
Step	Action	WIRING DIAGRAM	
		Control signal	Location (Electrical component)
1	Check the FM3 connector for proper connection and correct as necessary.	—	—
2	Check the fan for possible overload and correct as necessary.	—	—
3	Check the ADDB connector for proper connection and correct as necessary.	—	—
4	FM3 operation check.	ADDB CN6-1 (REM) ADDB CN6-3 (LOCK)	B-5
5	Change ADDB.	—	—
6	Change PRCB.	—	—

Duplex Overall wiring diagram



A0VT-B001-0A
Oct.2008

Duplex attachment Overall wiring diagram



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Oct.2008